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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/943,029	08/29/2001	Sang-Hyun Lee	19570-05384	9521
22918	7590	12/29/2004	EXAMINER	
PERKINS COIE LLP P.O. BOX 2168 MENLO PARK, CA 94026			TORRES, JUAN A	
			ART UNIT	PAPER NUMBER
			2631	

DATE MAILED: 12/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/943,029

Applicant(s)

LEE ET AL.

Examiner

Juan A. Torres

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11092004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

The drawings are objected to because FIG. 6 and FIG. 9 have not been printed correctly (it seems that the printer didn't have enough memory and some details that are in the original graphic have not been printed in the hardcopy, sometimes this problem can be fixed reducing the quality of the graphic at the time of printing). FIG. 6 is objected because: line 415 is not shown. FIG. 9 is objected because: Line 911 is not shown; line connecting block 911 with block 909 is not shown; line connecting block 901 with block 903 is not shown; line connecting label 903 with block "PHASE DISTRIBUTOR" is not shown. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the

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examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The disclosure is objected to because of the following informalities:

The abstract exceed 150 words in length.

Page 1 line 2 should be deleted.

Page 13 paragraph [0033] line 3 block 411 is not shown in FIG. 7.

Page 14 paragraph [0036] line 8 the recitation "1002" is suggested to be change to **"1002"** in bold to maintain the general presentation of the disclosure.

Page 20 line 8 the recitation "circuit,controlled by" is suggested to be changed to "circuit, controlled by"

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1, 4 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Bergmann (US 4821297).

As per claim 1 Bergmann (US 4821297) discloses a data recovery apparatus for a digital data stream of input data, comprising: phase shifting means for outputting multiple sampling clocks in a bit time, where the phase of said sampling clocks are automatically adjustable (figure 6 blocks 16, 14 and 38, column 7 line 21-40); data sampling means for sampling the input data using the sampling clocks as triggers, and for providing multiple sampled data signals, where one of said sampled data signals is used to output recovered data (figure 6 blocks 32, 34 and 36, column 7 line 18-21); compare logic means for comparing said sampled data signals to said recovered data (figure 6 block 20, column 7 line 41-45); and phase controlling means for estimating the

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phase relationship between the input data and said sampling clocks using the comparison result of said compare logic means, and for providing control signals to said phase shifting means according to said estimation result (figure 6 block 20, column 7 line 41-45).

As per claim 4 Bergmann (US 4821297) discloses a phase shifting means comprising: a phase distributor outputting a plurality of phase shift values (figure 6 block 38, column 7 line 21-40); a buffer receiving input from the phase distributor and outputting a first sampling clock in accordance with a first output of said phase controlling means (figure 1 and 6 block 14 and 38 output Φ_n , column 3 line 31-35); and selection logic receiving input from the phase distributor and outputting a second and third sampling clock in accordance with a second output of said phase controlling means (figure 6 block 38, column 7 line 21-22).

As per claim 6 Bergmann (US 4821297) discloses a data recovery apparatus for a digital data stream of input data, comprising: a phase shifter that outputs multiple sampling clocks in a bit time, where the phase of said sampling clocks are automatically adjustable (figure 6 block 38, column 7 line 22-40); a data sampler that samples the input data using the sampling clocks as triggers, and for providing multiple sampled data signals, where one of said sampled data signals is used to output recovered data (figure 6 block 32, 34 and 36, column 7 line 17-21); compare logic that compares said sampled data signals to said recovered data (figure 6 block 20, column 7 line 41-45); and a phase controller that estimating the phase relationship between the input data and said sampling clocks using the comparison result of said compare logic means, and

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for providing control signals to said phase shifting means according to said estimation result (figure 6 block 38, column 7 line 41-45).

Claim 9 is rejected under 35 U.S.C. 102(b) as being anticipated by Hogge (US 4218771). Hogge (US 4218771) discloses a data recovery method for a digital data stream, comprising: sampling input data at multiple points, where said sampling points are arranged by a predetermined order and adjustable time difference (figure 3 block 23 column 3 lines 49-60); providing a first pseudo bit-error signal that is a result of comparison of data sampled at an early boundary with recovered data (figure 3 block 33 column 3 line 60-65); providing a second pseudo bit-error signal that is a result of comparison of data sampled at a late boundary with recovered data (figure 3 block 35 column 3 line 66 to column 4 line 2); and using the first and second pseudo bit-error signals, so that the sampling boundary is marginally matched to the edge of an eye opening and one of the intermediate sampling points serves for data recovery (figure 3 block 51 column 4 lines 3-13).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2-3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bergmann (US 4821297) as applied to claim 1 above, and further in view of Hogge (US 4218771).

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As per claim 2 Bergmann (US 4821297) discloses claim 1. Bergmann (US 4821297) also discloses a phase shifting means comprising: phase delay means controlled by a first output of said phase controlling means for outputting a first sampling clock using an input clock which is one of an external clock and an internally recovered clock (figure 6 block 14, column 3 line 31-34); first circuit means controlled by a second output of said phase controlling means for outputting a second sampling clock that advances said first sampling clock in phase (figure 6 block 38, column 7 line 26-28); second circuit means controlled by the second output of said phase controlling means for outputting a third sampling clock that is delayed from said first sampling clock in phase (figure 6 block 20, column 7 line 24-25); Bergmann (US 4821297) doesn't disclose that the phases of the three sampling clocks are arranged within an eye opening of the input data stream with a predetermined margin even that is inherited in his description. Hogge (US 4218771) discloses that the phases of the three sampling clocks are arranged within an eye opening of the input data stream with a predetermined margin (figure 2 and 3, column 3 line 49-51). Bergmann (US 4821297) and Hogge (US 4218771) teachings are analogous art because they are from the same field of endeavor. At the time of the invention it would have been obvious to a person of ordinary skill in the art to incorporate the eye pattern disclosed by Hogge (US 4218771) with the recovery scheme disclosed by Bergmann (US 4821297). The suggestion/motivation for doing so would have been to establishing a late clock boundary condition and an early clock boundary condition (Hogge (US 4218771) column 2 lines 51-53).

As per claim 7 Bergmann (US 4821297) discloses claim 6. Bergmann (US 4821297) also discloses a phase shifting means comprising: phase delay means controlled by a first output of said phase controlling means for outputting a first sampling clock using an input clock which is one of an external clock and an internally recovered clock (figure 6 block 14, column 3 line 31-34); first circuit means controlled by a second output of said phase controlling means for outputting a second sampling clock that advances said first sampling clock in phase (figure 6 block 38, column 7 line 26-28); second circuit means controlled by the second output of said phase controlling means for outputting a third sampling clock that is delayed from said first sampling clock in phase (figure 6 block 20, column 7 line 24-25); Bergmann (US 4821297) doesn't disclose that the phases of the three sampling clocks are arranged within an eye opening of the input data stream with a predetermined margin even that is inherited in his description. Hogge (US 4218771) discloses that the phases of the three sampling clocks are arranged within an eye opening of the input data stream with a predetermined margin (figure 2 and 3, column 3 line 49-51). Bergmann (US 4821297) and Hogge (US 4218771) teachings are analogous art because they are from the same field of endeavor. At the time of the invention it would have been obvious to a person of ordinary skill in the art to incorporate the eye pattern disclosed by Hogge (US 4218771) with the recovery scheme disclosed by Bergmann (US 4821297). The suggestion/motivation for doing so would have been to establishing a late clock boundary condition and an early clock boundary condition (Hogge (US 4218771) column 2 lines 51-53).

As per claim 3 Bergmann (US 4821297) and Hogge (US 4218771) disclose claim 2. Bergmann (US 4821297) also discloses that the first circuit means and the second circuit means receive the first sampling clock (figure 1 and 6 block 16, column 3 line 22-26). Bergmann (US 4821297) and Hogge (US 4218771) teachings are analogous art because they are from the same field of endeavor. At the time of the invention it would have been obvious to a person of ordinary skill in the art to incorporate the eye pattern disclosed by Hogge (US 4218771) with the recovery scheme disclosed by Bergmann (US 4821297). The suggestion/motivation for doing so would have been to establishing a late clock boundary condition and an early clock boundary condition (Hogge (US 4218771) column 2 lines 51-53).

Claim 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bergmann (US 4821297) as applied to claims 1 and 6 above further in view of Hogge (US 4218771), and further un view of Epstein (US 3633115).

As per claim 5 Bergmann (US 4821297) discloses claims 1. Bergmann (US 4821297) also discloses a phase shifting means comprising a fixed local clock (crystal oscillator) to generate a plurality of phase delayed clock pulses controlled by a phase controlling means for outputting three sampling clocks by delaying the output of the crystal oscillator. Hogge (US 4218771) teaches that the phases of the three sampling clocks are arranged within an eye opening of input data stream with a predetermined margin. Epstein (US 3633115) teaches a voltage controlled oscillator (VCO) that provides an output clock following the phase variation of an input clock (figure 1 column 1 lines 45-60). Bergmann (US 4821297), Hogge (US 4218771) and Epstein (US

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3633115) teachings are analogous art because they are from the same field of endeavor. At the time of the invention it would have been obvious to a person of ordinary skill in the art that The VCO disclosed by Epstein (US 3633115) can substitute the crystal oscillator disclosed by Bergmann (US 4821297). The suggestion/motivation for doing so would have been to obtain a clock recovery system that can works in a greater margin of frequencies (Epstein (US 3633115) column 2 lines 47-49).

As per claim 8 Bergmann (US 4821297) discloses claims 6. Bergmann (US 4821297) also discloses a phase shifting means comprising a fixed local clock (crystal oscillator) to generate a plurality of phase delayed clock pulses controlled by a phase controlling means for outputting three sampling clocks by delaying the output of the crystal oscillator. Hogge (US 4218771) teaches that the phases of the three sampling clocks are arranged within an eye opening of input data stream with a predetermined margin. Epstein (US 3633115) teaches a voltage controlled oscillator (VCO) that provides an output clock following the phase variation of an input clock (figure 1 column 1 lines 45-60). Bergmann (US 4821297), Hogge (US 4218771) and Epstein (US 3633115) teachings are analogous art because they are from the same field of endeavor. At the time of the invention it would have been obvious to a person of ordinary skill in the art that The VCO disclosed by Epstein (US 3633115) can substitute the crystal oscillator disclosed by Bergmann (US 4821297). The suggestion/motivation for doing so would have been to obtain a clock recovery system that can works in a greater margin of frequencies (Epstein (US 3633115) column 2 lines 47-49).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan A. Torres whose telephone number is (571) 272-3119. The examiner can normally be reached on Monday-Friday 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JAT 12-2-2004


MOHAMMED GHAYOUR
SUPERVISORY PATENT EXAMINER